

CLAIMS:

1 **1.** A communication system comprising:

2 an optical transmission network having an input end and an output end;

3 a wavelength division multiplexer coupled to said input end of said optical
4 transmission network, said wavelength division multiplexer being configured to
5 receive data packets directly from each internet-traffic source in a plurality of
6 internet-traffic sources and to modulate, in response to said data packets, a
7 corresponding plurality of optical beams, each of said optical beams having a
8 selected wavelength; and

9 a wavelength division demultiplexer coupled to said output end of said optical
10 transmission network, said wavelength division demultiplexer being configured
11 to select a particular optical beam from said plurality of optical beams and to
12 retrieve data packets therefrom.

13 **2.** The communication system of claim 1 wherein said wavelength division multiplexer
14 comprises:

15 a plurality of wavelength translators, each of said wavelength translators being
16 directly connected to an internet-traffic source from said first plurality of
17 internet-traffic sources and configured to modulate an optical beam in response
18 to data packets received from said internet-traffic source, said optical beam
19 having a selected wavelength;

20 an optical coupler in communication with each of said wavelength translators and
21 coupled to said input end of said optical transmission network.

22 **3.** The communication system of claim 1, wherein said communication system further
23 comprises:

24 a plurality of wavelength translators, each of said wavelength translators being
25 directly connected to an internet-traffic destination selected from a plurality of

internet-traffic destinations and being configured to provide data packets received from said demultiplexer to said internet-traffic destination.

4. The communication system of claim 1, further comprising a first SONET interface coupled to said input end of said optical transmission network, said first SONET interface being configured to receive data from a SONET-traffic source packaged in a SONET frame for transmission on said optical transmission network on a selected wavelength dedicated to SONET traffic.

5. The communication system of claim 4, further comprising a second SONET interface coupled to said output end of said optical transmission network, said second SONET interface being configured to retrieve said SONET frame from said optical transmission network and to provide said data contained therein to a SONET traffic destination.

6. The communication system of claim 1, wherein said optical transmission network comprises an optical fiber configured for data transmission at rates of OC-192 or greater.

7. A method comprising:

providing an optical transmission network having an input end and an output end;

coupling a wavelength division multiplexer to said input end of said optical transmission network,

configuring said wavelength division multiplexer to receive data packets directly from each internet-traffic source in a plurality of internet-traffic sources and to modulate, in response to said data packets, a corresponding plurality of optical beams, each of said optical beams having a selected wavelength;

coupling a wavelength division demultiplexer to said output end of said optical transmission network, said wavelength division demultiplexer; and

configuring said wavelength division demultiplexer to select a particular optical beam from said plurality of optical beams and to retrieve data packets therefrom.

8. The method of claim 7 wherein said coupling said wavelength division multiplexer comprises:

connecting each of a plurality of wavelength translators directly connected to an internet-traffic source from said first plurality of internet-traffic sources;

configuring each of said wavelength translators to modulate an optical beam in response to data packets received from said internet-traffic source, said optical beam having a selected wavelength;

coupling an optical coupler in communication with each of said wavelength translators to said input end of said optical transmission network.

9. The method of claim 7, wherein said method further comprises:

coupling a plurality of wavelength translators to said internet-traffic destination, each of said wavelength translators being directly connected to an internet-traffic destination selected from a plurality of internet-traffic destinations and being configured to provide data packets received from said demultiplexer.

10. The method of claim 7, further comprising coupling a first SONET interface to said input end of said optical transmission network, said first SONET interface being configured to receive data from a SONET-traffic source packaged in a SONET frame for transmission on said optical transmission network on a selected wavelength dedicated to SONET traffic.

11. The method of claim 10, further comprising coupling a second SONET interface to said output end of said optical transmission network, said second SONET interface being configured to retrieve said SONET frame from said optical transmission network and to provide said data contained therein to a SONET traffic destination.

76 12. The method of claim 7, wherein providing said optical transmission network
77 comprises an providing an optical fiber configured for data transmission at rates of
78 OC-192 or greater.